

# Portable DC Hipots

## 40-200 kV

### Testing Applications

Perform accurate DC hipot testing of electrical switchgear, cables, motors, generators, and protective equipment

- **Lightweight** and **ruggedly constructed** for years of field use
- Models available with **easy to read digital meters** or a **full-color touch screen** display with **data acquisition**
- **Internal** discharge device
- **Shielded** high voltage **output cable**
- **ISO17025 calibration** upon request



## Portable DC Hipots 40-200 kV

Phenix Technologies offers a line of portable 40-200 kV DC Hipots with many advanced features.

The high voltage is generated by a filtered high voltage doubler circuit, that is purpose built by Phenix for the exacting demand of high voltage testing.

A solenoid operated discharge switch quickly discharges the load after testing. All high voltage components are housed in an oil filled aluminum sealed grounded dead tank. A shielded high voltage lead allows the operator to safely connect the high voltage output to the test object. The high mA charging current, which is standard with all Phenix DC Hipots allows the operator to quickly and efficiently charge large capacitive loads.

In the standard series the precision metering measured off of the high voltage output indicates the output voltage and leakage current on large easy to read digital meters. An analog meter is provided for reading charging current.

The "B" series has a 7" Full-Color Touch-Screen display with auto-ranging current meters plus many additional features. The "B" series include a separate always active internal guard mode and will calculate insulation resistance continuously.

Additional safety features include an instantaneous and thermal overload protection for the operator and the test object.

The proven and rugged design coupled with precision metering and ease of use have made Phenix DC hipots the optimal choice.



### Standard Series – Design & Safety Features

- Main power circuit breaker switch (with indicator)
- External warning circuit provision for safety devices such as flashing light
- High Voltage ON/OFF pushbuttons with indicators
- Manual control of output voltage
- Zero Start interlock
- External interlock provision
- Overload circuit adjustable from 10% to 110% of rated current
- Output overload indicator with reset button
- Slow and fast acting transient protection on all meters and relays
- Built-in discharge circuit
- Very low ripple, <2% RMS at full output
- 3 ½ digit, multi-range metering
- Analog charging currentmeter
- Guard mode for accurate current measurements
- Thermal resettable overload protecting high voltage transformer primary circuits

### "B" Models – Design & Safety Features

- Main power circuit breaker switch
- External warning circuit provision for safety devices such as flashing light
- High Voltage ON/OFF buttons with indicators
- Emergency Off pushbutton (Locking)
- Automatic voltage control or manual voltage control via infinity dial
- USB port for data acquisition via USB drive
- WiFi control from PC (Requires optional software)
- Auto-ranging meters for total current and specimen return current
- Return lead safety locking retention clip
- Shielded test current measurement lead
- Built-in discharge circuit
- Very low ripple, <2% RMS at full output
- 7" Full-color touch-screen display

### HMI displays metering, various controls, and system messages

- Breakdown memory voltmeter
- Maximum voltage reached memory voltmeter
- Duration and Dwell timers
- Zero Start interlock
- Adjustable rate of rise in Volts/seconds
- Adjustable overcurrent trip point
- Output overload indication with reset
- Insulation Resistance calculation

	MODEL	440-20 & 440-20B	475-20 & 475-20B	4100-10 & 4100-10B	4120-10 & 4120-10B	4160-5 & 4160-5B	4200-5 & 4200-5B
INPUT	Voltage / Current	110-120 V, 5 A 220-240 V, 3A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A	110-120 V, 10 A 220-240 V, 5 A
	Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
DC OUTPUT	Voltage / Current	0-40 kV, 20 mA	0-75 kV, 20 mA	0-100 kV, 10 mA	0-120 kV, 10 mA	0-160 kV, 5 mA	0-200 kV, 5 mA
	Ripple	<2%					
	Polarity	negative output, positive ground					
DUTY CYCLE	Continuous Capacitive Charging	20 mA	20 mA	10 mA	10 mA	5 mA	5 mA
INTERNAL DISCHARGE DEVICE		3 kJ	6 kJ	6 kJ	12 kJ	12 kJ	12 kJ

METERING	Model	440-20	475-20	4100-10	4120-10	4160-5	4200-5
	Type	Digital, LCD, 3 1/2 digit, Accuracy 0.5% of Full Scale					
	Voltmeter	0-19.99/0-40 kV	0-19.99/0-75 kV	0-19.99/0-100 kV	0-19.99/0-120 kV	0-19.99/0-160 kV	0-19.99/0-200 kV
	Currentmeter	0-19.99 $\mu$ A/ 199.9 $\mu$ A/ 1.999 mA/ 19.99 mA					
	Output Charging Indicator	1.5" Analog 0-100% of selected range indication					
	Model	440-20B	475-20B	4100-10B	4120-10B	4160-5B	4200-5B
	Type	HMI Displayed, Accuracy +/- (0.8% of Reading +0.2% of Range)					
	Voltmeter, Peak $\sqrt{2}$	0-40 kV	0-75 kV	0-100 kV	0-120 kV	0-160 kV	0-200 kV
	Total Currentmeter, True RMS	0-2 mA, 20 mA					
Specimen Currentmeter, Peak $\sqrt{2}$	0-20 $\mu$ A, 200 $\mu$ A, 2 mA, 20 mA						

DIMENSIONS & WEIGHTS (approx.)	Model	440-20	475-20	4100-10	4120-10	4160-5	4200-5	
	Controls	18.5 L x 10.5 W x 21.5" H		22.5 L x 21 W x 16.5" H		21 L x 17 W x 14" H		
		(470 x 267 x 546 mm)		(572 x 533 x 420)		(533 x 432 x 355 mm)		
		50 lbs (23 kgs)	59 lbs (27 kgs)	98 lbs (44 kgs)	25 lbs (11 kgs)	33 lbs (15 kgs)	35 lbs (16 kgs)	
	HV Tank	one-piece design				17.5 L x 12 W x 22" H	18 L x 12.75 W x 28" H	23 L x 20 W x 36" H
						(440 x 205 x 560 mm)	(460 x 325 x 710 mm)	(584 x 508 x 614 mm)
						111 lbs (50 kgs)	150 lbs (68 kgs)	375 lbs (170 kgs)
	Shipping Size	22 L x 14 W x 24" H		27 L x 26 W x 21" H	48 L x 30 W x 41" H	42 L x 27 W x 37" H	Consult Factory	
		(558 x 356 x 610 mm)		(686 x 660 x 533 mm)	(1219 x 762 x 787 mm)	(1067 x 686 x 940 mm)		
		56 lbs (25 kgs)	69 lbs (31 kgs)	115 lbs (52 kgs)	195 lbs (88 kgs)	285 lbs (129 kgs)		
Model	440-20B	475-20B	4100-10B	4120-10B	4160-5B	4200-5B		
Controls	22 L x 13 W x 24" H		Consult Factory	Consult Factory	Consult Factory	Consult Factory		
	(559 x 330 x 609 mm)							
	71 lbs (32 kgs)	77 lbs (35 kgs)						
HV Tank	one-piece design			Consult Factory				
Shipping Size	24 L x 21 W x 30" H		Consult Factory					
	(610 x 533 x 762 mm)							
	95 lbs (43 kgs)	112 lbs (51 kgs)						

### ACCESSORIES INCLUDED

- User guide
- Calibration Certificate
- Cables
  - Input Power 7' (2 m)
  - High Voltage 20' (6 m)
  - Ground 20' (6 m)
  - Return 20' (6 m)
  - Power interconnect 25' (8 m), for models 4120-10, 4160-5, 4200-5

## Options

- Positive polarity output
- Custom cable lengths
- Calibration data

### ➤ Ground and Discharge Sticks



- Model GS100-2 (100 kV) or GS160-2 (160 kV) Ground Stick, 2-piece design, with a 25' (7 m) ground lead
- Model GS30 (30 kV) Ground Stick, single piece design, with a 25' (7 m) ground lead
- Model DS100-2 Discharge Stick (100 kV, 100 kΩ, 50 kJ), 2-piece design with a 25' (7m) ground lead
- Model GSDS-30 (30 kV) Combination Ground/Discharge Stick, with a 25' (7 m) ground lead

### ➤ Safety Hand Switch with 10' (3 m) lead

### ➤ Safety Foot Switch with 20' (6 m) lead



### For "B" models Only

### ➤ Windows software for connection to PC

### ➤ Hand cart (option for models 4120-10, 4160-5)



### ➤ Flashing Light, Mounted or Stand-alone

- Flashing Light, Mounted, Telescoping Pole
- Flashing Light with Security Circuit, magnetic base
- Red/Green Light, Folding Base, Security Circuit, E-stop, 20' (6 m) Cable



## Environmental Operating Conditions

- 10-40°C, indoor/outdoor in fair weather
- Humidity <95% non-condensing
- Altitude <3300 ft (1000 meters)



**PHENIX**  
TECHNOLOGIES

#### WORLD HEADQUARTERS

#### Phenix Technologies, Inc.

75 Speicher Drive  
Accident, MD 21520 USA  
Ph: +1.301.746.8118  
Fx: +1.301.895.5570  
Info@phenixtech.com

#### BRANCH OFFICES

#### Phenix Systems AG

Riehenstrasse 62A, 4058 Basel, Switzerland  
Ph: +41.61.383.2770, Info@phenixsystems.com

#### Phenix Asia

Zhong Cheng Rd, Sec 1, No 177, 2F, Taipei 11148 Taiwan  
Ph: +886.2.2835.9738, Fx: +886.2.2835.9879, Info@phenixasia.com

ISO  
9001:2008  
Compliant